

WHAT IS CLAIMED IS

1. A liquid crystal display device for displaying video data, comprising

an input video data characteristic detection section for detecting a luminance characteristic to the gradation of the inputted video data,

a gradation correction section for correcting the gradation in accordance with the luminance characteristic and

a liquid crystal panel for displaying the corrected gradation.

2. A crystal display device according to claim 1, wherein the gradation correction section corrects the gradation such that the luminance for a gradation of higher generation frequency than that of other gradation is relatively higher compared with that for other gradation in the luminance characteristic.

3. A crystal display device according to claim 2, wherein the gradation correction section increases the luminance of the gradation of high generation frequency.

4. A crystal display device according to claim 2, wherein the gradation correction section decreases the luminance of

the gradation adjacent to the gradation of high generation frequency.

5. A crystal display device according to claim 1, wherein the gradation correction section corrects the gradation so as to emphasize the black color when the gradation of high generation frequency is situated on the side of the gradation of relatively lower level in the luminance characteristic.

6. A crystal display device according to claim 1, wherein the gradation correction section corrects the gradation so as to emphasize the white color when the gradation of high generation frequency is situated on the side of the gradation of relatively higher level in the luminance characteristic.

7. A crystal display device according to claim 1, wherein the gradation correction section corrects the gradation such that the luminance for the gradation containing the maximum luminance value in the luminance characteristic approaches the maximum luminance value that the liquid display panel can display.

8. A crystal display device according to claim 1, wherein the gradation correction section corrects the gradation such that the luminance for the gradation containing the minimum luminance value in the luminance characteristic approaches the minimum luminance value that the liquid display panel can display.

9. A crystal display device according to claim 1, wherein the input video image characteristic detection section detects the luminance characteristic on every one or plural frames of the inputted video data.

10. A crystal display device according to claim 9, wherein the luminance characteristic contains at least one of the luminance distribution, maximum luminance value, the minimum luminance value and the average luminance value in one or plural frames.

11. A crystal display device according to claim 1, wherein the device further comprises a luminance signal generation section for generating luminance data of the inputted video data, and

the input video image characteristic detection section detects the gradation characteristic based on the luminance data.

12. A crystal display device according to claim 1, wherein the input video data characteristic detection section comprises:

a detection setting section for setting a detection period,

a divisional number setting section for setting a divisional number of dividing the gradation of the inputted video data,

a luminance distribution detection portion for accumulating the generation frequency of gradations in the regions divided by the divisional number set by the divisional number setting section during the detection period set by the detection setting section,

a maximum/minimum luminance detection portion for detecting the maximum luminance and the minimum luminance in each of the regions divided by the divisional number set in the divisional number setting section during detection period set by the detection setting section, and

an average luminance detection portion for detecting the average luminance in each of the regions divided by the divisional number set in the divisional number setting section during the detection period set by the detection setting section.

13. A liquid crystal display device according to claim 1, wherein the device further comprises a gradation correction coefficient generation section for calculating a correction coefficient in each of the gradations based on the generation frequency of the gradation detected by the input video data characteristic detection section.

14. A liquid crystal display device according to claim 13, wherein the luminance characteristic is calculated as a linear line, a polygonal line or a curve connecting adjacent set values for each of corrected gradations.

15. A liquid crystal display device for displaying video data comprising:

a liquid crystal panel,

a back light for illuminating the liquid crystal panel,

an input video data characteristic detection section for detecting the luminance characteristic to the gradation of the inputted video data and

a back light control section for controlling the amount of light of the back light in accordance with the luminance characteristic.

16. A liquid crystal display device according to claim 15, wherein the luminance characteristic contains an average luminance in one or plural frames.

17. A liquid crystal display device according to claim 15, wherein the back light control section relatively decreases the amount of light of the back light when the luminance in one or plurality of frames is lower compared with the luminance in other one or plural frames.

18. A liquid crystal display device according to claim 15, wherein the back light control section relatively increases the light amount of light of the back light when the luminance in one or plural frames is higher compared with the luminance in other one or plural frames.

19. A liquid crystal display device according to claim 15, wherein the back light control section decreases the amount of light of the back light when the luminance of the inputted video data decreases.

20. A liquid crystal display device according to claim 15, wherein the back light control section increases the amount of light of the back light when the luminance of the inputted video data increases.